

IN THE SPECIFICATION:

Please amend paragraph [0002] on page 1 of the specification as follows:

With compound semiconductors that comprise a Group 12 (2B) element and a Group 16 (6B) element in the periodic table (hereinafter, that are referred to Group II-VI compound semiconductors), generally, free control of conduction types of p-type and n-type is difficult except CdTe (cadmium telluride). Thus, extremely a few electro luminescence devices provided with these materials and methods for producing the same are made practicable, and the ranges thereof remain limited.

Please amend paragraph [0006] beginning on page 2 and ending on page 3 as follows:

However, as above-described, with the electro luminescence device provided with the Group II-VI compound semiconductor, the material system is extremely limited because the physical property that the control of conduction types in the Group II-VI compound semiconductor is difficult. Thus, the electro luminescence device having the Group II-VI compound semiconductor has not been put to practical use except for the ZnSe system materials.



Please amend paragraph [0007] on page 3 of the specification as follows:

When the electro luminescence device provided with the ZnSe system material was fabricated, the epitaxial growth method was required to be applied to the fabrication, ~~for making the~~ to make control of ~~the~~ conduction types possible. Thus, there were problems that the productivity was low, and that the production cost increased because an expensive apparatus such as the radical gas source or the like was required.

Please amend paragraph [0011] on page 4 of the specification as follows:

At first, the inventors ~~or the like deposited~~ investigated ~~depositing~~ diffusion sources over ZnTe substrates of compound semiconductors (Group II-VI compound semiconductors) comprising Group 12 (2B) elements and Group 16 (6B) elements in the periodic table and being produced by some producing methods, and then formed pn junctions by thermally diffusing the diffusion sources. Thereafter, the inventors ~~or the like~~ investigated ~~the~~ correlation between the light emission characteristics and the qualities of the substrate (particularly, crystal dislocation).

Please amend paragraph [0014] on page 5 of the specification as follows:



It was verified that the etch pits ~~by the formed using~~ sodium hydroxide occurred due to the dislocation in the crystal by another experiment. Therefore, with the ZnTe substrate, the dislocation density and etch pit density can be treated equally.

Please amend paragraph [0016] on page 5 of the specification as follows:

It has ~~been~~ known that a large number of inclusions exist inside of ~~crystal~~ crystals of the Group II-VI compound semiconductor ~~owing to depending upon~~ growth methods or growth conditions. For example, the Group II-VI compound semiconductor, which is applied to a substrate for a visible light emitting diode, has wide forbidden band width and is ~~transparence~~ transparent. Thus, the inclusions inside the substrate can be observed by an optical microscope.

Please amend paragraph [0017] beginning on page 5 of the specification and ending on page 6 as follows:

Thus p-type ZnTe substrates that were different from each other in densities of inclusions were prepared. Then, as a diffusion source, for example, Al or In was deposited over the front surfaces of the substrates, and pn junctions were formed by the thermal diffusion. The characteristics of the light emitting diodes formed by such a ~~way~~ method were compared with one another. When the density of the inclusions having grain



diameters of 0.3 to 10  $\mu\text{m}$  on the pn junction interfaces, which were observed in a focal field of the optical microscope of X100 to X200 magnification, was not more than 100,000/cm<sup>2</sup>, preferably not more than 50,000/cm<sup>2</sup>, it was possible to obtain the light emitting diodes having a little leakage current due to recombination and superior light emission efficiency.

Please amend paragraph [0034] on page 10 of the specification as follows:

Furthermore, the inventors ~~or the like~~ made repeated investigations into a method for controlling the conduction type of the Group II-VI compound semiconductor. Then, it was reasoned that when the impurities are doped into the crystal by diffusion, if the formation of vacancies can be controlled at the diffusion step, the effect of selfcompensation may be suppressed and efficient control of the conduction type may be possible.

Please amend paragraph [0036] on page 11 of the specification as follows:

As regards impurities remaining on the front surface of the substrate, it was found that when a compound of the element included in the diffusion source and the impurities is more stable at the diffusion temperature than a compound of the constitute element of constituting the substrate and the



impurities, the impurities can be removed from the front surface of the substrate, so that it gives the effect of improving the purity of the front surface of the substrate.

Please amend paragraph [0037] on page 11 of the specification as follows:

Then, based on the fruits of the investigations, the experiment was carried out ~~such that~~ using Al or In, (which may be in the form of impurities) ~~converting wherein~~ a p-type ZnTe substrate is converted into one of n-type~~,~~. The Al or In was deposited under vacuum on a front surface of the substrate to form Al or In thin film, and then heat treatment was carried out under N<sub>2</sub> atmosphere.

Please amend paragraph [0038] on page 11 of the specification as follows:

As a result, it was found that the deposited Al or In can prevent the highly volatile Zn from vaporizing from the front surface of the substrate, giving the effect of suppressing formation of vacancies in the substrate.